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Docket No.: 215504US6PCT

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

RE: Application Serial No.: 09/926,415
Applicants: Bruno GIBELLO
RCE Filed: March 6, 2005
For: PRODUCTION METHOD WITH BREAKAGE DETECTION FOR A THREAD
Group Art Unit: 1731
Examiner: Hoffmann, J.M.

SIR:

Attached hereto for filing are the following papers:

APPEAL BRIEF WITH APPENDICES

Our credit card payment form in the amount of **$500.00** is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
BRUNO GIBELLO	: EXAMINER: HOFFMAN, JOHN M.
SERIAL NO: 09/926,415	:
RCE FILED: MARCH 6, 2005	: GROUP ART UNIT: 1731
FOR: PRODUCTION METHOD WITH BREAKAGE DETECTION FOR A THREAD	:

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

The present Appeal Brief is submitted in response to the Final Rejection dated October 18, 2005, the Advisory Action dated November 28, 2005, and the Notice of Panel Decision from Pre-Appeal Brief Review dated February 3, 2006. A Notice of Appeal was filed together with the Pre-Appeal Brief Request for Review on December 7, 2005.

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(i) REAL PARTY IN INTEREST

The real party in interest in the present appeal is Saint-Gobain Vetrotex France, S.A. having a place of business at 130 Avenue des Follaz, 73000 Chambéry, France.

(ii) RELATED APPEALS AND INTERFERENCES

Appellant, Appellant's legal representatives, and assignee are not aware of any other appeals, interferences, or judicial proceedings that will directly effect or be directly affected by or have a bearing on the board's decision in the pending appeal.

(iii) STATUS OF CLAIMS

Claims 1-2, 6-7, 11, 15, 19, 22, 24, 26 and 28 are pending in this application. Claims 1-2, 6-7, 11, 15, 19, 22, 24, 26 and 28 have been finally rejected and form the basis for the appeal.

(iv) STATEMENT OF AMENDMENTS

An Amendment under 37 C.F.R. §1.116 was filed on November 15, 2005 in response to the Final rejection of October 18, 2005. In reply, an Advisory Action was mailed on November 28, 2005, indicating that, Appellants' reply of November 15, 2005 was not persuasive, and, for purposes of Appeal, would be entered. Appellant subsequently filed a Pre-Appeal Brief Request for Review, and received a Notice of Panel Decision from Pre-Appeal Brief Review indicating there is at least one actual issue for appeal.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

In the manufacturing of yarns from a plurality of filaments, in case of malfunction of the manufacturing process, it is likely that filaments break. Appellant has realized that it is important to detect breakage of at least one filament before breakage of the entire yarn, to thereby avoid occurrence of additional problems, as described in the specification from page 5, line 23, to page 6, line 17.

As shown in a non-limiting illustration in Figures 1 and 2 of Appellant's disclosure, the invention as recited in independent Claim 1 is directed to a process for manufacturing a continuous yarn. The process includes: drawing a multiplicity of streams of molten material to form a multiplicity of continuous filaments;[1] gathering the multiplicity of the filaments into the yarn 3 with a wheel 1;[2] and monitoring a position of the wheel 1 to determine whether a tension exerted by the multiplicity of the filaments falls below a predetermined tension to detect breakage of at least one filament before breakage of the entire yarn 3.[3]

Independent Claim 19 recites a method of determining breakage of at least one filament of yarn that includes steps similar to the above-noted Claim 1 steps in terms of gathering a plurality of filaments into yarn with a wheel and monitoring the movement of the wheel to determine if at least one filament has broken before breakage of the entire yarn. Accordingly, yarn 3, wheel 1, the above noted showings of Figures 1 and 2, and footnoted locations in the specification are again considered exemplary.

Appellant's Claims 1 and 19 improve upon background processes for manufacturing continuous yarns, since Appellant's claimed process can detect the breakage of the first filaments of the yarn as soon as possible and can then take measures to avoid different

[1] See Appellant's Specification, for example at page 6, lines 24-27.
[2] Idem at page 8, lines 29-30, and in Figures 1 and 2.
[3] Idem at page 9, lines 6-23, and in Figures 1 and 2.

problems in the manufacturing process. See the Specification, at page 6, lines 18-23, and at page 9, lines 24-30, for example.

(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds for rejection to be reviewed on appeal and outstanding in the present application are as follows:

Claims 1-2, 6-7, 11, 15, 19, 22 and 24-28 were rejected under 35 U.S.C. §103(a) as unpatentable over Minkler (U.S. Patent No. 3,560,178) in view of Harrill (U.S. Patent No. 3,844,497), Underwood (U.S. Patent No. 3,467,739) and Arterburn (U.S. Patent No. 5,935,289) and optionally in view of Fulk (U.S. Patent No. 3,847,579).

(vii) ARGUMENT

Appellant respectfully submits that ***all the references*** relied upon by the October 18, 2005 Office Action, Minkler, Harrill, Underwood, Arterburn and Fulk, whether taken individually or in combination, ***fail to teach or suggest*** at least the following feature of Appellant's independent Claims 1 and 19:

> the monitoring of a position/movement of a wheel used to gather filaments to form yarn to determine whether a tension exerted by the multiplicity of the filaments falls below a predetermined tension to detect breakage of at least one filament before breakage of the entire yarn.

The reference Minkler discloses an apparatus for producing fiber glass where filaments are gathered into a strand, where upon ***break-out of the strand***, a switch is opened

and the electric circuit which supplies current to the winder motor is interrupted.[4] Appellant respectfully submits that Minkler not only fails to teach or suggest that a breakage of at least one filament is detected *before breakage of the entire yarn*, this reference also fails to teach or suggest the monitoring of a position of the wheel to determine whether a tension exerted by the multiplicity of the filaments *falls below a predetermined tension* as required by Claim 1 or to monitor movement of the wheel gathering the filaments into yarn to determine whether at least one filament has broken before breakage of the entire yarn as Claim 19 recites.

First, Minkler clearly teaches that "upon breakage of the fibers and when ***no fibers contact the shoe*** 16, the counterweight 62 causes the arm 38 to pivot to its Figure 3 position (emphasis added)."[5] Accordingly, Minkler does not teach or suggest a step of monitoring a position or movement of the wheel to detect whether a tension exerted by filaments on the wheel falls below a predetermined value or that at least one filament has broken. The shoe 16 merely displaces itself laterally after Minker's entire strand is torn. Accordingly, when Minkler's shoe 16 displaces itself, there is no tension at all caused by the strand and all the filaments have broken.

Second, Minkler discloses that upon ***break-out of the strand***, a mercury switch is opened.[6] Therefore Minkler fails to teach or suggest the detecting of breakage of at least one filament before breakage of the entire yarn strand, as recited in Claims 1 and 19. Otherwise, Minkler's shoe 16 cannot displace itself. Minkler further teaches that the electrical circuit for driving the shoe can be closed "only when the strand contacts the shoe."[7] The final Office Action admits that Minkler does not teach detecting breakage that is less than breakage of the

[4] See Minkler at column 1, lines 50-56 and in corresponding Figure 2.
[5] See Minkler at column 2, lines 66-69 and in corresponding Figures 2 and 3.
[6] See Minkler in the Abstract.
[7] See Minkler at column 1, lines 63-69.

entire strand yet fails to understand that Minkler teaches away from Appellant's invention because Minkler's motor is only interrupted when the entire strand is detected to be broken.

Fulk does also not teach or suggest the above-noted features that Minkler fails to disclose. Fulk discloses a method and apparatus for controlling the tension of linear materials between material feeding and collecting.[8] Fulk's apparatus thereby provides a predetermined tension between the delivering and collecting means, with the biasing force of a spring 58 and a damping mechanism 200.[9] Further, Fulk controls the rotational speed of the collet 80, as shown in Fulk's Figure 5. Accordingly, Fulk fails to teach or suggest the detection of a breakage of at least one filament before breakage of the entire yarn. Controlling a rotational speed, as taught by Fulk, ***is not*** detecting any breakage of all or part of any yarn. Fulk also fails to teach or suggest the Claim 1 monitoring of a position of the wheel to determine whether a tension exerted by the multiplicity of the filaments falls below a predetermined tension. Fulk also fails to teach the Claim 19 monitoring of wheel movement to detect breakage of at least one filament of a yarn.

Harrill fails to remedy the deficiencies of Minkler and/or Fulk, because it also does not teach or suggest the features of Appellant's independent Claims 1 and 19, as mentioned above. Harrill discloses a system for stopping a collet in a spiral glass filament winding machine, in the event of strand breakage.[10] However, Harrill also fails to teach or suggest Appellant's claimed monitoring of a position of the wheel or wheel movement to determine whether a tension *exerted by the multiplicity of the filaments falls below a predetermined tension* (Claim 1) or movement of a yarn gathering wheel to detect breakage of at least one filament of the yarn (Claim 19). While Harrill teaches detecting the breakage of a number of filaments, rather than the breakage of the entire strand at col. 7, lines 44-55, such detection is

[8] See Fulk in the Abstract.
[9] See Fulk at column 6, lines 43-53 and in Figures 1 and 6-8.
[10] See Harrill in the Abstract.

done in an entirely different way, i.e., by detecting an airflow other than the one generated by the filament motion, because an airflow in the proximity of the moving filament will change, if the strand breaks. The airflow can move a baffle that serves to operate a micro-switch that can shut down the winders.[11] Such teachings are entirely different from Appellant's claimed monitoring of a position or movement of a wheel and do not teach how other sensors to detect full breakage, as in Minkler, can be modified to detect partial breakage.

Underwood also fails to remedy the deficiencies of Minkler, Fulk and Harrill. Underwood discloses a method and apparatus for exercising control of material processing units to deliver material onto a moving conveyor, wherein the rate of movement of the conveyor can be modified if the material processing units fail to deliver material.[12] Underwood further teaches that the load of an induction motor driving a pull wheel will change, if there is a partial or complete strand breakout, and that the phase angle of the motor's supplying current changes.[13] This phase angle change of the current is measured by an electric circuit[14] and ***is not*** monitoring of a position or a movement of a wheel, as recited in Claims 1 and 19. The final Office Action appears to suggest that this teaching can be considered out of context, but this is contrary to established precedent. See, In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ 1313, 1317 (Fed. Cir. 2000) ("... reference statements cannot be viewed in the abstract. Rather, they must be considered in the context of the teaching of the entire reference.").

Arterburn discloses an apparatus for automatic fiber manufacturing, and is concerned with the process restarting the fiberizing machines ***after the fibers are broken***.[15] Arterburn merely states that "when one fiber breaks it is only a matter of few minutes until the entire

[11] See Harrill at column 2, lines 3-26 and in corresponding Figure 2.
[12] See Underwood in the Abtract.
[13] See Underwood at column 8, lines 3-8.
[14] See Underwood at column 8, lines 8-30 and in corresponding Figure 9.
[15] See Arterburn in the Abstract.

bushing is broken out and generating scrap primary fibers."[16] Therefore, Arterburn merely describes a part of the problem that Appellant's invention is trying to solve. Accordingly, Arterburn not only fails to remedy the deficiencies of Minkler, Fulk, Harrill and Underwood, but even teaches away from Appellant's Claims 1 and 19. In this respect, "[a] reference may be said to teach away when a person of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." See also In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). To this end, in approaching the question of obviousness, it is improper to "consider[s] references in less than their entireties, i.e., in disregarding disclosures in references that diverge from and teach away from invention at hand." W. L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1540, 220 USPQ 303, 311 (Fed. Cir. 1983).

Clearly, none of the relied upon references teach or suggest the Claim 1 required monitoring a position of the yarn gathering wheel to determine whether a tension exerted by the multiplicity of the filaments being gathered falls below a predetermined tension to detect breakage of at least one filament before breakage of the entire yarn. Just as there is no teaching or suggestion of monitoring the wheel position, there is also none to monitor the movement of this gathering wheel to determine the breakage of at least one filament before breakage of the entire yarn as set forth by Claim 19.

The October 18, 2005 Office Action[17] appears to reject Appellant's claims based on the other applied references teaching that the switch of Minkler should be modified so as to be "tripped by a change in tension that corresponds to the breakage of less than all the fibers so as to maximize efficiency and reduce variation." However, this "switch" is clearly the above-noted "mercury switch" 52 where the only teaching in Minkler as to triggering this

[16] See Arterburn at column 1, lines 54-58.
[17] See paragraph bridging pages 4 and 5 of the October 18, 2005 final Office Action.

switch is that also noted above. Thus, Minkler ***requires complete breakage*** as it is only with complete breakage that "no fibers contact the shoe 16" so that counterweight 62 can cause "the arm 38 to move to pivot to its FIG. 3 position" so that "magnet 40 is moved away from switch 52" to stop "rotation of both the transverse motor and the winder motor," as described at col. 2, line 66 – col. 3, line 2. Clearly, this suggested modification is not proper since it would require a complete redesign of Minkler's system for detecting breakage of the entire yarn to somehow cause the magnet to move based on breakage of but one filament instead of the entire yarn. Such a complete redesign and modification of the basic operating principle of the breakage detecting mechanism is clearly prohibited. See In re Ratti 270 F.2d 810, 813, 123 USPQ 369, 352 (CCPA 1959).

Moreover, to the extent that the outstanding Action suggests an attempt to bring the isolated teaching of Fulk's damping mechanism to control in rotational speed, [18] into Minkler's shoe 16 that detects break-out of a strand [19] this would amount to improperly picking and choosing features from different references without regard to the teachings of the references as a whole.[20] Also, the outstanding Action fails to present any explanation of how this damping mechanism teaching would motivate the artisan to modify Minkler to cause the magnet to move away from the switch 52 when only a single filament breaks. See In re Lee, 277 F.3d 1338, 1342, 61USPQ2d 1430, 1432-33 (Fed. Cir. 2002). Under such a modification, Fulk's damping mechanism would have to detect a break-out of Minkler's strand. Such modification would require a substantial reconstruction or redesign of the elements of Minkler and/or would change the basic principle of operation of Minkler's detection mechanism as noted above.

[18] See Minkler in Figure 3, elements 16 and 38
[19] See Fulk in Figure 5, elements 54, 56, and 58.
[20] See Minkler in Figure 3, elements 16 and 38.

Furthermore, the establishment of a *prima facie* case of obviousness requires the PTO to demonstrate that if the references are combined, the result of that combination will contain all the claim limitations, Appellant point out that even if Minkler, Harill, Underwood, Arterburn, and/or Fulk were to somehow be combined, the combination would not teach or suggest all the features of Appellant's independent claims.

Accordingly, Appellant respectfully requests review of the rejection based on Minkler, Harrill, Underwood, Arterburn and Fulk.

In view of these foregoing comments, each of the pending Claims 1-2, 6-7, 11, 15, 19, 22, 24, 26 and 28 clearly distinguish over the applied art, and thus the outstanding rejections of Claims 1-2, 6-7, 11, 15, 19, 22, 24, 26 and 28 must be REVERSED.

Respectfully submitted,

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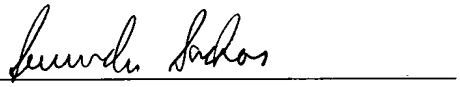

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(viii) CLAIMS APPENDIX

Claim 1: Process for manufacturing a continuous yarn-comprising:

drawing a multiplicity of streams of molten material to form a multiplicity of continuous filaments;

gathering the multiplicity of the filaments into the yarn with a wheel; and

monitoring a position of the wheel to determine whether a tension exerted by the multiplicity of the filaments falls below a predetermined tension to detect breakage of at least one filament before breakage of the entire yarn.

Claim 2: The process according to Claim 1, wherein the multiplicity of filaments is gathered in a peripheral groove on the wheel.

Claim 6: The process according to Claim 1, wherein the molten material comprises glass.

Claim 7: The process according to Claim 1, wherein the molten material comprises glass and thermoplastic.

Claim 11: The process according to Claim 2, wherein the molten material comprises glass.

Claim 15: The process according to Claim 2, wherein the molten material comprises glass and thermoplastic.

Claim 19: A method determining breakage of at least one filament of a yarn:

gathering a plurality of filaments into the yarn with a wheel; and

monitoring a movement of the wheel to determine whether the at least one filament has broken before breakage of the entire yarn.

Claim 22: The method according to claim 19, wherein the lever is configured to pivot about an axis.

Claim 24: The method according to claim 19, wherein the plurality of filaments is gathered into the yarn by a peripheral groove on the wheel.

Claim 26: The process according to claim 1, further comprising:

disposing the wheel to rotate and to pivot relative to an end of a shaft.

Claim 28: The method according to claim 19, further comprising:

disposing the wheel to rotate and to pivot relative to an end of a shaft.

(ix) EVIDENCE APPENDIX

none.

(x) RELATED PROCEEDINGS APPENDIX

none.